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ABSTRACT

Recent research on teachers' expectations has begun to explore the factors underlying the link between expectations and performance. To investigate the relationship between the affective responses of teachers and students' attributions regarding effort versus ability, 130 college students (66 male, 64 female) were instructed in solving anagrams and subsequently solved three out of five anagrams. Upon completing the test, each subject received one of seven affective responses to his performance from the instructor: anger, pity, relief, positive surprise, negative surprise, pride, or no emotion. The subjects then completed an attribution questionnaire. An analysis of the results showed that emotional responses produced greater effort and ability attributions than did no emotion. Responses containing positive emotions or positive feedback led to significantly greater effort attributions than responses containing negative emotions or negative feedback. The element of surprise in emotion reduced perceptions of effort attributions and also resulted in greater attributions to ability. Future research should focus on the impact on affect-attribution links of self versus teacher perceptions, various cultural and ethnic group memberships, and situational and contextual factors. (Author/BL)

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Perusing Teacher Expectations: A Closer Look at Affect-Attribution Links

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Abstract

Recent research on teachers' expectations has begun to explore in greater depth the factors (e.g., nonverbal behavior, past performance, social class) underlying the link between expectations and performance. One of the most powerful influences on students' performance may be their perception of how teachers respond to them. Thus, combining ideas from previous teacher expectation studies with more recent research by Bernard Weiner et al. and Carol Dweck, a study was designed to explore the relationship between the affective responses of teachers' and students' attributions regarding effort versus ability. In addition, we were interested in how perceptions of success or failure might mediate these effects.

In a laboratory experiment, 130 subjects (66 males and 64 females) were instructed on how to solve anagrams. Upon completing the test, each subject received one of seven affective responses regarding their performance: anger, pity, relief, positive surprise, negative surprise, pride, or no emotion. In general, emotional responses produced greater effort and ability attributions than did no emotion (with the exception of pity and ability attributions); responses containing positive emotions or positive feedback led to significantly greater effort attributions than responses containing negative emotions or negative feedback; and the elements of surprise in emotion reduced perceptions of effort attributions and also resulted in greater attributions to ability.

These findings illustrate the importance of affect in the attributional process, particularly as it relates to teacher expectations. Additional research is needed to further elucidate the impact on affect-attribution links of self versus teacher perceptions, various cultural and ethnic group membership, and situational and contextual factors.

A wide body of literature attests to the occurrence of self-fulfilling prophecies in the classroom. This phenomenon, known to many as "teacher expectations" or "pymalion in the classroom" refers to the process by which students come to perform at levels consistent with the teacher's belief or expectations about their abilities. Teacher expectations manifest themselves in many ways in a classroom. Differential treatment of students consist of, among other things, praise, criticism, explicit commands, attention, feedback, seating arrangements and emotional responses.

These variations in student and teacher interactions can affect students in a number of ways. Attributions about one's own abilities as well as perceptions of the teachers beliefs, expectations and attitudes often are influenced. Thus, the present investigation examines a portion of the teacher expectations effect by focusing on feedback (as expressed through emotional responses of teachers to task performance) and its impact on attributions and perceptions of the student.

Self-fulfilling prophecies have traditionally been defined as situations in which a person's (the "perceiver") beliefs about another (the "target") evoke from the target behaviors which confirm the perceiver's original (and potentially erroneous) expectations (Merton, 1948; Rosenthal and Jacobson, 1968). In these situations either "objective" assessments (such as IQ tests), or naive outside observers attest to the fact that the target is indeed exhibiting behaviors consistent with the perceiver's expectations. Darley and Fazio (1980) have expanded the concept to include interactions in which the perceiver simply interprets the target's actions as validation of her or his preconceived notions (regardless of whether or not others would agree).

Although different aspects of self-fulfilling prophecies have been investigated, much of the research has focused on classroom interactions. Some investigators have examined which factors (e.g. past performance, physical attractiveness, social class, sex, race, etc., elicit teacher expectations) (cf. Burstall, 1978; Rosenthal and Jacobson, 1968; Rist, 1970; Mazer, 1971; Seligman et al. 1972; Rosenthal, 1974; Cooper et al. 1975; Dweck, 1975; Dweck et al. 1978; Taylor, 1979; and Cooper, 1981) underlie teacher expectations while other research concentrates on how teachers express their expectations (e.g. praise, criticism, seating arrangements, nonverbal cues), (Brophy and Good, 1970; Rist, 1970; Richey and Richey, 1981). Increasingly, studies attempt to explicate the process as it occurs in the classroom (Brophy & Good, 1970; Cooper, 1975).[1]

There is also evidence that students respond to the various manifestations of teacher expectations in such a way as to confirm those expectations. Burstall (1978) describes a number of studies where the "good" students are provided with greater opportunities to participate in classroom activities. In a different but perhaps analogous situation, Word, Zanna, and Cooper (1974) demonstrated that less immediate nonverbal cues (e.g., less eye contact, more physical distance, etc.) on the part of an interviewer produced poorer performance among applicants and that black applicants received less immediate non-verbal cues from white interviewers. They concluded that job interview situations may be characterized by an expectation effect process whereby blacks do indeed perform worse largely as a result of the prior negative evaluations on the part of white interviewers. While indirect, these results suggest the possibility of a similar process operating in multi-racial

classrooms.

One of the most powerful influences on achievement, however, may be the students' perceptions of what the teacher thinks about them. How might teachers convey their beliefs and expectations about particular students? Recent research has shown that certain emotions expressed in response to students' performance tend to be differentially associated with controllability and stability of outcomes (Graham and Weiner, 1981; Weiner et al. 1982). Specifically the following linkages were found between emotions expressed by a teacher and attributions for a student's failure: anger-lack of effort, guilt-poor teaching, surprise-lack of effort and pity-low ability. These affect-attribution links are important because children who attribute failure to factors believed to be stable and uncontrollable (e.g. lack of ability) are more likely to perform worse in the future. In contrast, children who attribute failure to controllable and unstable factors (e.g., effort) are more likely to persist and improve on subsequent tasks (Dweck, 1975; Dweck, et al. 1978).

In creating a model of how affect-attribution links operate, Weiner and his associates (Weiner, 1982; Graham and Weiner, 1981; Weiner, 1981, Weiner et al. 1979) have used scenarios (fictitious stories in which a teacher interacts with a student) and retrospective accounts (subjects' memories regarding their own success and failure experiences). In their simulated teacher-student studies Weiner, et al, have been unable to specify how the emotional expressions of teachers influence the attributions of students in face-to-face interaction. Therefore the present investigation expands Weiner's work on affect-attribution links in a number of important ways, and also attempts to overcome some of the

limitations of his methods. Similar to the research of Weiner, et al. 1982; Graham and Weiner, 1981, we focus on the affect-attribution links but provide students with an actual task and real emotional feedback. Hence the present study examines the nature of the affect-attribution process as it occurs in ongoing social interactions.

In addition, Weiner's recent research has focused on specific affective reactions (anger, pity, guilt, negative surprise). These affective reactions all lead to attributions based on social exchanges involving negative feedback. To more thoroughly elucidate the affect-attribution process, in addition to selecting a subset of these emotional responses (i.e., anger, pity and negative surprise), we also included some positive emotions; positive surprise, pride and relief.

Since emotional responses can impact on subjects in a variety of ways, we were particularly interested in comparing the positive and negative emotions in terms of their impact on perceptions of the teacher's attributions regarding effort and ability. Moreover, three emotions convey an element of surprise (positive surprise , negative surprise, and relief[2]) while three do not (anger, pity, and pride). This surprise factor may be important because a surprised response indicates that inherent in the teacher's expectation is some element of doubt or that the teacher's expectations have been violated. Thus an examination of the role of surprise in the affect-attribution process was also included.

Subjects

144 introductory psychology students were recruited to participate in an unspecified psychology experiment as part of a class requirement. One S was eliminated because she was highly suspicious throughout the

initial proceedings. We constructed the test so that nearly all Ss would solve three out of five anagrams - the test consisted of three easy anagrams and two impossible ones. Unfortunately thirteen students failed to solve all three of the "easy" anagrams, and were therefore eliminated from the analyses. Thus 130 Ss - 64 males and 66 females - completed the entire procedure.

Confederates

In order to insure an accurate portrayal of each emotion we presented to naive judges videotaped scenes of each actor expressing each emotion in response to a student's test score. When at least 70% of each set of judges agreed that the teacher conveyed the emotion he intended we allowed that actor to express the emotion in the actual experiment. Any time an actor failed to reach a criteria of 70% for a particular emotion, he was retrained and required to "pass" another set of judges[3].

Although the words were standardized, the nonverbal cues varied across teachers and emotions. By allowing the teachers freedom in the nonverbal aspects of the emotional expressions, yet also requiring them to meet a criteria of 70% agreement among judges, their emotional expressions appeared more genuine and were empirically validated prior to their use in the experiment. Males were chosen as confederates because past research "has shown less pronounced sex differences in response to failure feedback from male adults than from female adults" (Dweck and Bush, 1976, p.150). For our short term classroom experience, it was considered more likely that the impact of emotional responses would be detectable with a male confederate. Confederates were interviewed and

auditioned.

Validity Check

In addition to the procedure specified above, after completing the attribution questionnaire, Ss were asked to identify the emotion that the teacher expressed in response to their performance. The accuracy rate (in percent) for each emotion is presented below:

No Emotion	Unpleasantly Surprised	Pleasantly Surprised	Anger	Pity	Relief	Pride
94.7	100	94.7	61.1	61.1	61.1	47.4

Thus, emotional responses were validated twice. These results, however, raise some questions about differences between intended and perceived emotions which are beyond the scope of this paper.

When analyzing the questionnaire results, though, Ss were divided according to the emotion they perceived the teacher as expressing for several reasons. First, in Weiner's scenario studies he explicitly told subjects which emotion the teacher expressed, and in his retrospective account studies subjects recalled incidents in which they perceived the teacher as expressing a certain emotion. So in order to directly compare our findings to those of Weiner, we grouped subjects according to the emotion that they perceived rather than according to the emotion that the teacher intended.

Questionnaire

Inasmuch as attributions for success often differ from attributions for failure, we first asked Ss to indicate whether or not the teacher thought they did well. Then, in order to facilitate Ss' thinking about the teacher we "primed" each S with an open ended attribution question (e.g., "Why does the teacher think you did/did not do well?"). In order to be confident that we were accurately assessing Ss' perceptions of the

teacher's attributions, we asked each attribution question three different ways (see appendix 1). The final "attribution score" for each factor was computed by summing the Ss' responses to all three questions.

Procedure

The experimenter introduced him- or herself to the S and presented the following cover story:

> You are about to participate in an experimental program developed for the training of future teachers. You and a graduate student in education will comprise one of several teacher-student teams involved in performing a series of tasks (you will be the student and he will be the teacher). Your team will be compared to other teacher student teams on test scores. Also , your teacher will evaluate your results and discuss them with me. After each task you will be asked to complete a questionnaire concerning your experiences as a student in this program. Do you have any questions?

One purpose of this cover story was to increase the importance to the S of performing well (beyond Ss' "natural commitment to research") - thus the "evaluation" by the experimenter and the competition between teams. The other main function was to create the impression that the teachers had a stake in the S's performance. This was an attempt to provide a context in which the teacher's emotional response to the S's performance would appear appropriate.

After the cover story, each S was introduced to the teacher, and the two were given a few minutes to get acquainted. Teachers were given a standard background, which they could mention when appropriate, and were also encouraged to ask the S about him or herself. Although teachers were monitored throughout the study, this acquaintance session was largely unstructured, and the interaction relatively spontaneous. Our purpose here was to establish at least a minimal relationship between the teacher and the S.

The teacher then gave the S a brief lesson on how to solve

anagrams. This lesson included explaining to the S what an anagram was, some strategies for solving them and some illustrative examples. The teacher then handed the S a test consisting of five anagrams, told the S that s/he would have approximately seven minutes to work and left the room.

During this time the experimenter randomly chose one of the seven emotions. By randomly selecting an emotion at this time, we achieved two goals: 1) the teacher could not let his knowledge of the emotion influence his interaction with the S during either the acquaintance session or the lesson. The teacher was allowed some time to review the videotaped version of his emotional expression which had "passed" a set of judges. After approximately seven minutes the teacher returned to the S, looked over his or her exam, and responded with one of the following seven emotions:

Anger: "You only got three out of five. That's not a very good score. Well, I'll just bring this to the experimenter."

Pity: "You only got three out of five. Well, don't feel too bad. Maybe you'll do better next time."

Positive surprise: "Are you finished? You got three right! That's great, I'm impressed."

Negative surprise: "Haven't you finished? You had plenty of time. I can't understand why you only got three out of five."

Pride: "You got three right! That's a very good score. I'm glad to have you as my student."

Relief: "Thank goodness. You got three out of five. Now I can take this to the experimenter."

No emotion: "You got three right. Now I'll take this to the experimenter."

The teacher left the room after expressing the emotion, and the ex-

perimenter returned with the questionnaires. In order to eliminate highly suspicious Ss the experimenter asked the S to "describe the experiment in your own words." And, indeed, one S expressed some suspicion at this point and was removed from subsequent analyses. All other Ss, however, did not indicate any suspicion and were then given the attribution questionnaires. After completing the attribution questionnaire, Ss received the validity check and a postexperimental questionnaire (see Appendix 2). Ss were debriefed upon completing the postexperimental questionnaire.

Results

The segment of our analyses reported here focuses on perceptions of the teacher's attributions. Initial results revealed no sex differences, so groups were collapsed across the sexes. Table 1 present the means for perceived effort and ability attributions for each emotion (these results are discussed below).

Insert table 1 about here

Effort

One way analysis of variance was performed to determine the effect of emotions on perceptions of the teacher's attributions to effort. This computation revealed a highly significant difference among emotions ($F(6,121)=4.99$, $p<.0001$). Further, pairwise contrasts illustrate all six emotions led to greater perceived effort attributions than did the no emotion group ($p<.05$ for all six contrasts). Thus, these emotional responses differentially influenced Ss' perceptions of the teacher's belief about the role effort played in determining their performance.

And indeed the "success" group perceived the teacher as making significantly greater effort attributions than the "failure" group (two-tailed $T(127)=3.95$, $p<.0001$). Thus the differential impact of positive versus negative emotions on perceived effort attributions was apparently largely mediated by the feedback each emotional response provided regarding the S's performance.

The element of surprise might also help account for the rather large impact of emotional responses on perceived effort attributions. Consequently we contrasted the effort attribution scores of the surprise emotions with the non-surprise emotions (relief, positive surprise, negative surprise vs. pity, anger, and pride)[4]. This analysis demonstrates that the surprise emotions led to significantly lower attributions to effort ($F(1,121)=7.63$, $p<.01$). Apparently surprise led Ss to perceive the teacher as making fewer effort attributions, regardless of whether the surprise emotion was positive or negative.

Ability

We performed one way analysis of variance in order to determine the effect of emotions on perceptions of the teacher's attributions to ability. This analysis revealed marginally significant differences among emotions ($F(6,120)=1.96$, $p<.08$). There was not a great deal of variation in the impact of the emotions on ability attributions. Thus, this finding illustrates that emotions influence ability attributions similarly. An explanation further supported by pairwise comparisons of each emotion to the no emotion control group. Every emotion except pity led to stronger ability attributions than did no emotion ($p<.05$ for all five contrasts). The notion that all the emotions affected perceived ability attributions similarly was further supported by contrasts which

revealed no significant differences between the surprise and non-surprise emotions ($p>.7$), or between the negative and positive emotions ($p>.7$).

Insert table 3 about here

Comparison of Effort and Ability Attributions

Thus far we have analyzed the impact of emotions on effort attributions separately from their impact on ability attributions. However, based on the work of Weiner we expected to find differences within emotions on effort and ability attributions. In order to directly compare the effort and ability attributions produced by each emotion we performed a one way ANOVA with repeated measures (the repetition being effort vs. ability attribution scores). If the emotions varied in their impact upon effort and ability attributions, then this analysis would yield a significant interaction between emotion and attribution. The interaction, however, was not significant ($F(6,118)=1.5$, $p>.15$).

Insert table 4 about here

Thus, this interaction term demonstrates that there was no attribution difference within emotions <u>after</u> accounting for the overall difference between perceived ability and effort attributions ($F(1,118)=4.04$, $p<.05$). What can explain this general tendency to perceive the teacher as attributing their performance more to ability than effort? The two most likely candidates again appear to be the effects

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Insert table 2 about here

Our first step in further elucidating how the impact of these affective responses varied was to compute a contrast of the attribution scores for the positive and negative emotions. This analysis revealed that the positive emotions led to significantly greater attributions to effort than did the negative emotions ($F(1,121)=6.22$, $p<.02$). Apparently, when the teacher's emotions were positive, Ss were more likely to think that the teacher attributed the quality of their performance to effort.

The remaining question concerns whether or not the difference between positive and negative emotions was primarily a result of the differential feedback provided by each type of response. If feedback is an important influence on perceived attributions then negative emotions should usually lead Ss to perceiving that the teacher thought they failed, and positive emotions should usually lead Ss to perceiving that the teacher thought they succeeded. In fact, 46 out of 55 Ss perceiving positive emotions indicated that the teacher thought they succeeded, and all 52 Ss perceiving negative emotions indicated that the teacher thought they failed. This result is highly significant (chi-square=77, df=5, $p<.0001$). Furthermore, if feedback is the primary influence on perceived attributions, then the difference in perceived attributions to effort should be even greater when comparing "success" with "failure" groups, than when comparing the positive and negative emotion groups.

of feedback and surprise.

Feedback and Surprise

In order to compare the positive and negative emotions, we first computed a difference score for each S (score for perceived ability attribution minus score for perceived effort attribution). A T-test on these scores revealed that the negative emotions did indeed produce slightly greater differences albeit marginally, between perceived attributions to ability and effort than did positive emotions (two-tailed $T=1.97$, $df=102$, $p<.06$). Furthermore, the differences between perceived ability attributions and effort attributions for the negative emotions was also significant (two-tailed paired $T=2.69$, $df=50$, $p<.01$), while there was virtually no difference at all for the positive emotions (two-tailed paired $T=.22$, $df=52$, $p>.8$).

This result again suggested a possible mediating role for Ss' perceptions of whether the teacher thought they succeeded or failed. We already know that these perceptions (success or failure) were largely determined by the teachers' responses, so we simply needed to discover whether or not grouping Ss by this perception would result in an even greater difference between attributions. Indeed, the difference between perceived effort and ability attributions were greater among those who believed the teacher thought they failed than among those who believed the teacher thought they succeeded (two-tailed $T=3.02$, $df=125$, $p<.004$). Furthermore, while the difference between perceived ability and effort attributions for the "failure" group was highly significant (two-tailed paired $T=3.98$, $df=73$, $p<.0003$), we found no such differences for the "success" group (two-tailed paired $T=.48$, $df=52$, $p>.6$). In other words: 1) When Ss believed the teacher thought they succeeded (which was large-

ly a result of the positive responses), they perceived no difference in the teacher's attributions to effort and ability; 2) When Ss believed the teacher thought they failed (which was largely a result of the negative emotions), they perceived the teacher as attributing their performance more to ability than effort; 3) This difference between the "success" and "failure" groups (as well as between the positive and negative emotion groups) was significant. Apparently then, the main effect indicating a seemingly general tendency to perceive the teacher as making greater ability attributions (see table 4) was largely due to the attributional differences associated with the negative emotions (because the positive emotions produced no differences).

We performed similar analyses to determine the impact of surprise on perceived attributions. The surprise emotions, however, did not cause significantly greater differences between perceived attributions to ability and effort than did non-surprise emotions (two-tailed $T=1.15$, $df=102$, $p>.25$). Nonetheless, the surprise emotions did produce significantly greater perceived ability than effort attributions (two-tailed paired $T=2.24$, $df=69$, $p<.03$), while the non-surprise emotions did not (two-tailed paired $T=.39$, $df=33$, $p>.6$). Therefore the impact of surprise may also help explain the general difference between perceived ability and effort attributions we found in our one way ANOVA with repeated measures, although probably not to the same degree as the feedback factor.

Discussion

In summary, our findings include: 1) All emotional responses produced greater effort and ability attributions than did no emotion (with the exception of pity and ability attributions). 2) Overall, emo-

tions led to greater ability attributions than effort attributions. Moreover, there was little variation in the impact of the emotions on ability attributions. 3) Responses containing positive emotions or positive feedback led to significantly greater effort attributions than did responses containing negative emotions and negative feedback. 4) The element of surprise in the emotional response reduced perceptions of effort attributions and also resulted in greater attributions to ability than to effort. The difference between surprise and non-surprise emotions was not significant, however.

The Impact of Success and Failure on Perceived Attributions

Our findings indicate that the magnitude of effort attributions was largely mediated by Ss' perceptions of whether or not the teacher thought they succeeded. The group of Ss who believed they received positive feedback perceived that the teacher made relatively high effort attributions, while Ss who believed they received negative feedback perceived that the teacher made lower attributions to effort.

Why should positive feedback lead to greater perceived effort attributions than negative feedback? Eccles and Wigfield (in press) indicate that students with positive achievement motivation generally attribute success to ability and failure to lack of effort, while students with negative achievement motivation attribute failure to lack of ability and success to external causes. In addition, they suggest that perception of personal control over outcomes characterizes high achievers, but not low achievers. This type of process could at least partially account for our findings as follows: If the teacher's reaction conveyed the message that when the S succeeded the teacher felt s/he was positively motivated, and that when the S failed the teacher felt

s/he was negatively motivated (this message can be implicit, impressionistic and is not necessarily phenomenologically thought of in terms of "achievement motivation") then: 1) both the "success" and "failure" Ss would believe the teacher attributed their performance to ability, and 2) the "failure" Ss would perceive the teacher to make fewer effort attributions because they also would see the teacher as believing they had less control over their performance. Our results follow this pattern.

Obviously we cannot definitively determine from these data whether or not Ss perceived implicit messages about the teacher's view of their achievement motivation. Moreover, at first glance it may be difficult to understand how such a message could be successfully conveyed in a single, relatively brief interaction. Nonetheless, Ss lack of familiarity with both the teacher and the situation (an experimental laboratory study involving the one-to-one teaching of anagrams) may have left them particularly susceptible to reacting to whatever informational cues were provided. And our Ss may have been especially sensitive to the teacher's reaction to their performance because such cues provided the only information regarding the teacher's perception of them.

Messages conveying whether or not the teacher thinks a student is positively motivated may contribute to the expectancy confirmation process, despite the likelihood that emotions have a lesser impact on self-attributions than perceived attributions (Coleman, Abraham, and Jussim, in preparation). If the teacher is the main source of feedback regarding performance, then consistent feedback over time suggesting that the student is simply not motivated may ultimately influence self-attributions, self-concept, achievement motivation and performance.

Despite our findings, when students fail, teachers need not necessarily convey a negative view of the student's motivation and ability. Teachers usually interact with students on an ongoing basis and have many opportunities to indicate whether they believe the student can and/or desires to do well (as opposed to our one-time only interaction). Indeed, Eccles and Wigfield (in press) suggest that the crucial mediator between present and future performance is both the teacher's and the student's beliefs regarding their ability to control future performance. Ironically, therefore, teachers who believe that performance is largely due to uncontrollable characteristics of the student may be more susceptible to self-fulfilling prophecy effects than teachers who believe they can and do influence students' performance.

Surprise

The element of surprise inherent in relief, positive surprise, and negative surprise produced in lesser perceived attributions to effort than ability than the non-surprise emotions (pity, pride, and anger). This pattern, was less striking, however, than the pattern of attributions associated with success and failure. In some ways our data do not provide a strong test of the impact of surprise. Surprise, in this context, conveys a violation of expectations. Thus a stronger test would compare surprise with messages clearly indicating that the teacher's expectations were confirmed, as well as with other ambiguous messages. In our study surprise was only compared to ambiguous messages (pity, pride, and anger). Nonetheless, surprise reduced effort attributions whether it conveyed that the teacher had expected the student to perform poorly (positive surprise, relief), or that the teacher had expected the stu-

dent to perform better (negative surprise). In other words, emotions containing surprise did have at least a moderate influence on Ss' perceptions of the teacher's attributions.

The impact of surprise may in part be due to its implicit message regarding control. When we have a great deal of control over outcomes we can usually predict them accurately. However, when outcomes differ from our expectations, especially when we previously thought we could control the outcome, we are likely to feel surprised. Consequently, we feel that either our actions had effects we did not intend, or that we did not really have any influence at all. In either case, our prior sense of control attenuates. Perhaps, then, the surprise emotions led Ss to perceive that the teacher attributed their performance more to ability (which is seen as a stable, minimally controllable characteristic) than effort (which is seen as unstable yet controllable), because by its nature, surprise implies that the outcome was due more to uncontrollable than controllable factors.

Emotions Compared with the No Emotion Control Group

Thus far we have discussed the role of feedback and surprise upon perceived attributions. The impact of these emotions, however, goes beyond simply informing people whether their performance confirmed the teacher's expectations, and whether the teacher felt one succeeded or failed. In fact regardless of whether the emotion conveyed success failure, some expression of emotion led to greater perceived attributions than did no emotion.

One difficulty in interpreting these findings is that the teacher's no emotion response contained neither clear feedback, nor much (if any) affect. Therefore we cannot definitively determine the relative con-

tributions of these factors to the no emotion findings. Future research on affect-attribution links could include a condition devoid of much affect, but which contains feedback concerning how well the student performed on the test. Nonetheless it seems clear that the lower attribution scores associated with our no emotion group are due either to lack of feedback, lack of affect, or both, and we discuss these factors in more detail below.

Why did some emotional response lead to greater perceived attributions to both ability and effort? One possibility is that almost any emotion indicates some type of personal interest and/or commitment on the part of the teacher. If this is true, then students might believe that interested/committed teachers are concerned, and think a great deal about the reasons for students' performance (as opposed to more distant teachers who, by definition, are not very concerned about students). Thus students would perceive a teacher expressing any emotion at all as making greater attributions for their performance.

Another explanation is simply that our no emotion response conveyed little information of any kind, so that Ss had no criteria for inferring the teacher's attributions. They would not necessarily need to think the teacher is less interested, but would simply have less information for inferring the teacher's causal ascription. In the no emotion condition, our Ss may have been uncertain about whether the teacher attributed their performance to any single factor and as a consequence, they were less willing to indicate that the teacher strongly, or even moderately, attributed their performance to any particular factor.

Even this seemingly less interesting explanation of the no emotion results could have important implications. Instead of feeling that lack

of emotional expression communicates disinterest, Ss might have felt that lack of feedback connotes indifference. And indifference, whatever its cause, would probably lead to lower perceptions of the teacher's attributions. We would speculate, then, that teachers who occasionally, and in appropriate circumstances affectively respond to students' performance do indeed convey more of a personal interest in those students, than do teachers who rarely respond emotionally.

Affect-Attribution Links in Face-to-Face Interaction

One goal of this study is to compare the affect-attribution links that occur during social interaction with those found in previous studies of (Weiner, et al, 1982; and Graham & Weiner, 1981). Of course the only possible direct comparisons involve the negative emotions (anger, pity, and negative surprise), because these are the only emotions included in both sets of research. Indeed, a simple perusal of our table of means (table 1) reveals although that there are both similarities and differences between our findings and those of Weiner. In Weiner's research as well as our study, anger is most strongly associated with perceived attributions to effort. However, Weiner finds clear differences between the pattern of attributions associated with each emotion, while we find no significant differences among negative emotions. Moreover, in our study, an unpleasantly surprised response does not lead to high perceptions of effort attributions, while Weiner finds it to be rather strongly associated with effort attributions.

In addition, the impact of emotions on perceived attributions to ability deviates substantially from the findings of Weiner. In contrast to Weiner's results, our data indicates that both anger and negative surprise are strongly linked to perceived ability attributions--these

links are even stronger than the association between these emotions and effort. Finally, pity leads to the lowest (rather than highest) perceived ability attributions.

What can account for some of these rather sharp differences? Although we cannot definitively answer this question, we can note some important differences between these studies. Perhaps the most obvious difference is between the use of scenarios, retrospective accounts, and face-to-face interactions. When Ss read scenarios and remember past events they are obviously not directly involved in an interaction. As Weiner himself has suggested (Weiner et al. 1979) he may have only succeeded in assessing naive theories of how emotions and attributions should go together, rather than how feelings actually do influence causal ascriptions.

There were also some important differences in the situations Ss confronted in each experiment. Our Ss faced a relatively unfamiliar situation (individually learning how to solve anagrams from a student teacher as part of a laboratory experiment). Weiner's Ss, on the other hand considered classroom interactions in the form of scenarios or memories. Although our Ss may have been more personally involved, Weiner's Ss were at least thinking about situations which in some ways more closely approximated real classrooms. These situational differences may account for much of the difference in findings, although precisely how and why these dissimilarities in methodology led to different patterns of results remains unclear.

Conclusion

Much previous work on self-fulfilling prophecies has examined dif-

ferences in behavior directed toward the target, the effect of the perceiver's expectations on the performance of the target person, and how expectations develop. Little research, however has investigated the nature of the process(es) by which differential treatment leads to variations in performance. In particular, how targets respond to specific types of differential treatment has received little attention from social psychologists. Although we have not examined subsequent performance in our study, we have investigated one potential process by which teacher expectations may ultimately influence the student. The main assumption underlying our research has been that the effect of differential treatment of students is largely mediated by the students' own cognitive and affective responses to interactions with the teacher.

Moreover, despite the discrepancies the two sets of findings, we believe that Weiner's research, as well as our study, has convincingly demonstrated the importance of affect in some person perception and attributional processes. This small body of research indicates that: 1) When we remember our reactions to our own performance on different tasks, we strongly associate different emotions with particular attributions (e.g., Graham and Weiner, 1981); 2) A teacher's emotional expressions influence outside observers' (or at least readers') perceptions of the teacher's attributions (e.g., Weiner, et al. 1982); 3) Teacher's emotions influence students' perceptions of the teacher's attributions (this study); 4) Teacher's emotions may influence students' own attributions (Coleman, Abraham, and Jussim, in preparation).

Eccles and Wigfield (1983), however, suggest that beliefs regarding one's ability to control future performance is the crucial mediator between past and future performance (rather than attributions for current

and past performance). Although this hypothesis has yet to be empirically tested, it does seem to be an insightful idea. Just prior to their discussion of controllability of future performance, however, Eccles and Wigfield indicate that a prevalent belief (at least among Americans) is that ability is a stable, relatively unalterable factor. Apparently then, this leaves effort as the major remaining controllable factor. Furthermore, whether we attribute past performances to controllable factors or uncontrollable factors will have an influence on our beliefs about the controllability of future performance in similar situations. Therefore although there may be individual and cultural differences in beliefs regarding which factors are controllable, in general there will be a strong relationship between attributions for past performance and beliefs about the controllability of future performance. Nonetheless, it would be both reasonable and relatively easy for future research examining the influence of specific kinds of teacher behaviors to incorporate direct assessments of students beliefs about their ability to control future performance (as well as their perceptions of the teacher's beliefs).

Furthermore, the sometimes striking differences between our findings and Weiner's strongly suggests that various situational and contextual factors may influence affect-attribution links. In some ways, our study is more comparable to supervisor-supervisee (or employer-employee) interactions than to teacher-student interactions. Supervisory relationships, more than most educational relationships, are characterized by individuals working with and being trained by a superior (this was exactly the situation confronting our Ss). In fact superiors in the workplace may respond emotionally to subordinate's performance

with some frequency. For example, most of us would probably have little difficulty imagining the boss becoming angry at someone for failing to do his/her job; or expressing pride in an employees' special accomplishment; or in being relieved that an important deadline had been met. Although we know of little research investigating the nature of affectively laden communications in supervisory relationships, we believe that this, too, could be an interesting and important realm for examining affect-attribution links and the role of cognitive/affective processes in interpersonal interactions.

Our research, though, and much of Weiner's (e.g. Weiner et al. 1982; Weiner, et al. 1979; Weiner, 1979) has been motivated by the potential importance of affective communication in educational contexts. Little research, if any, has directly investigated the role affect plays in real classroom situations. For example, teachers criticize low achievers more than high achievers for failure, and they praise the lows less than highs for successes; they don't provide feedback to the public responses of lows; they pay less attention to, and interact less with lows; they smile less and express fewer supportive and immediate nonverbal behaviors to lows. Therefore, important issues for future research include investigations of the frequency and nature of affective expressions in actual classrooms, as well as the responses of students to such communication.

We also believe that future research should investigate the nature of affect-attribution links among differing racial and cultural groups. It is certainly possible that attributions for similar behaviors vary across cultures (as well as across American sub-cultures). In addition, the interpretation and norms for the expression of specific emotions may

also vary from one culture to another (Ekman and Oster, 1979). Thus the inferences and meanings members of different cultural groups extract from a set of emotional expressions (or any kind of communication) may sharply contrast with one another. We also expect such interpretive and communicative differences would contribute to cross-cultural variations in behavioral responses to seemingly similar interpersonal behaviors. Moreover, such research could increase our understanding of the interpersonal processes by which miscommunication occurs between members of different ethnic, racial, and cultural groups both within the U.S. and internationally (see Hall, 1969; Erickson, 1979, for a discussion of some of the sources of miscommunications).

Finally, for the purpose of more fully understanding self-fulfilling prophecies in educational and occupational settings, additional research should directly investigate the impact of various affective and cognitive processes on subsequent performance. Inasmuch as self-concept and self-schemas may play vital roles in determining performance, we are particularly interested in examining the relationship between perceived attributions and self-attributions. In fact, we will continue to analyze our data to discover whether there is bi-directional influence, uni-directional influence, or little influence at all between perceived and self-attributions. Additional research is needed to determine whether perceived or self-attributions more strongly influences subsequent task performance. We would speculate, however, that: 1) Self-concept and self-schemas mediate much of the information on past performance as well as the influences on future performance; 2) Assessments made at a single point in time of an individual's perceptions of a superior's beliefs about him or her will not be strongly related to sub-

sequent task performance but prolonged exposure to a superior's consistent messages about one's competence will eventually affect one's self-concept and, therefore, influence future achievement.

Much of current social psychological theory and research focuses on social cognition. Consequently we now have an impressive array of conceptual tools (e.g., attributions, scripts, schemas, etc.) which could be useful in understanding how individuals respond to their social environment. Therefore, we encourage the use of additional social cognitive concepts in future research on interpersonal interactions. Indeed the behavioral confirmation process inherently includes such traditional social psychological concepts as expectations, stereotypes and interpersonal influence. We feel that self-fulfilling prophecies are an especially rich theoretical context for future research on the functioning of social cognitive, perceptual, and affective processes.

[1]See Snyder, Tanke, and Berscheid, 1977, for an excellent attempt to "map" the behavioral confirmation process in male/female social interactions.

[2]Relief usually results when an anticipated negative outcome fails to occur. Consequently we believe it contains an important element of surprise.

[3]We followed this procedure for every emotion except pride. After several attempts, two out of three actors still failed to meet the 70% criterion. However, we felt the positive effects of using several encoders exceeded the negative effects of using difficult to decode expressions of pride. Inasmuch as we grouped subjects by the emotion they perceived, we felt it was not overly detrimental to use actors who failed to meet the 70% criterion for pride.

[4]Because two surprise emotions are positive and only one is negative (and only one non-surprise emotion is positive while two are negative) a simple contrast of surprise minus non-surprise emotions would be confounded by the effect of positivity/negativity. We used the following contrast because it equalizes the positivity/negativity of the surprise and non-surprise emotions: (pride + .5(anger + pity)) - (negative surprise + .5(positive surprise + relief)).

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TABLE 1

MEAN PERCEPTIONS OF ATTRIBUTIONS TO EFFORT AND ABILITY BY EMOTION

EFFORT	ABILITY
Pride= 11.18	Anger= 9.92
Anger= 9.58	Neg. Surp.= 9.59
Relief= 9.25	Pride= 9.70
Pos. Surp.= 9.16	Pos. Surp.= 9.68
Pity= 8.00	Relief= 9.42
Neg. Surp.= 6.52	Pity= 8.62
No Emotion= 4.55	No Emotion= 6.72

TABLE 2

ONE-WAY ANALYSIS OF VARIANCE FOR EFFORT ATTRIBUTIONS

Source of Variation	Sums of Squares	Degrees of Freedoms	Mean Square	F-Ratio
Emotions	495.00	6	82.50	4.99**
Error	2001.2	121	16.54	

**p<.0001

TABLE 3

ONE-WAY ANALYSIS OF VARIANCE FOR ABILITY ATTRIBUTIONS

Source of Variation	Sums of Squares	Degrees of Freedoms	Mean Square	F-Ratio
Emotions	156.14	6	26.02	1.96[a]
Error	1594.7	120	13.29	

[a]p<.08

TABLE 4

ONE-WAY ANALYSIS OF VARIANCE (REPEATED MEASURES) FOR DETERMINING THE IMPACT OF EMOTIONS ON ABILITY ATTRIBUTIONS VS. EFFORT ATTRIBUTIONS

Source of Variation	Sums of Squares	Degrees of Freedoms	Mean Square	F-Ratio
Overall Difference between ability attributions and effort attributions	48.58	1	48.58	4.04*
Attribution by emotion interaction	108.13	6	18.02	1.5ns
Error	1419.89	118	12.03	

*p<.05